



Carrera: Ing. Sistemas de información

Materia: Redes de datos

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Alumna:



Apellido y Nombre	legajo
Enriquez, Sylvina	-----

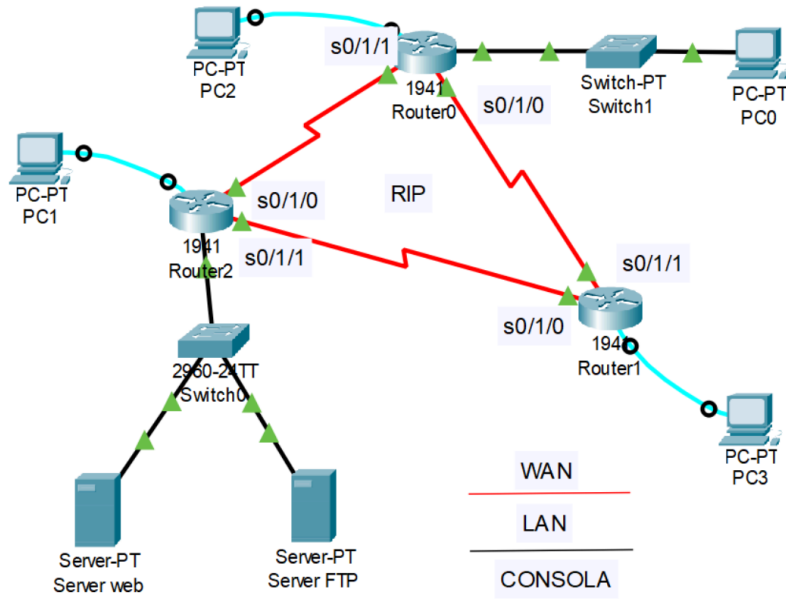
Curso: 2025

CONSIGNA TRABAJO PRÁCTICO 6

Enrutamiento OSPF

Tema: Enrutamiento OSPF.

1. Dado el siguiente diagrama de red:



- Implementar la topología.
- Configurar, lógicamente, el diagrama tomando direccionamiento IP clase B en los routers.
- Elegir redes clase C para las LAN.
- Establecer enrutamiento OSPF entre los routers.
- Publicar los servicios Web y FTP en los servidores

Ejemplo de configuración:

[entrar en el modo de configuración]

router# configure terminal

[habilitar OSPF y asignar el ID 1]

router(config)# router ospf 1

[Publicar Red directamente conectada]

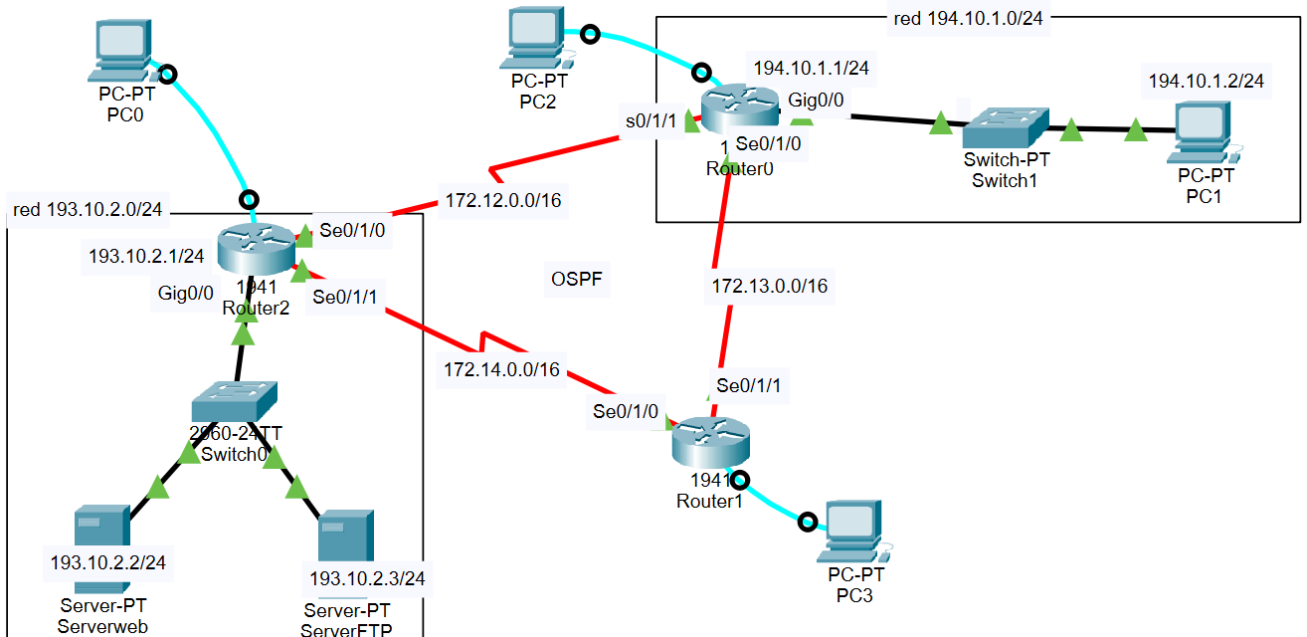
router(config-router)# network IP Wildcard area 0

- a. Documentar la comunicación entre la PC y los servidores
- b. Documentar la tabla de enrutamiento de los Routers.
- c. Documentar la comunicación entre la PC cliente y los servicios de FTP y WWW
- d. Adjuntar el archivo .pkt

Desarrollo del trabajo práctico 6

1. Dado el diagrama de red:

- Implementar la topología.



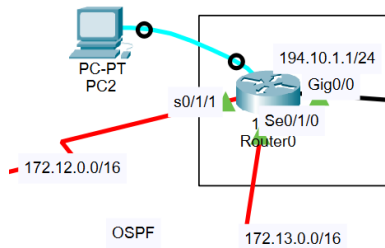
- Configurar, lógicamente, el diagrama tomando direccionamiento IP clase B en los routers.

Los números de IP elegidas para los routers figuran en la imagen anterior:

- Entre Router0 y Router1: 172.13.0.0/16
- Entre Router1 y Router2: 172.14.0.0/16
- Entre Router2 y Router0: 172.12.0.0/16
- Elegir redes clase C para las LAN.
 - Con el Router2: 193.10.2.0/24
 - Con el Router0: 194.10.1.0/24
- Establecer enrutamiento OSPF entre los routers.

Ejemplo de configuración:

```
[entrar en el modo de configuración]
router# configure terminal
[habilitar OSPF y asignar el ID 1]
router(config)# router ospf 1
[Publicar Red directamente conectada]
router(config-router)# network IP Wildcard area 0
```

Router0:

Router0# conf term

Router0(config)#router ospf 1

Router0(config-router)#network 172.12.0.0 0.0.255.255 area 0

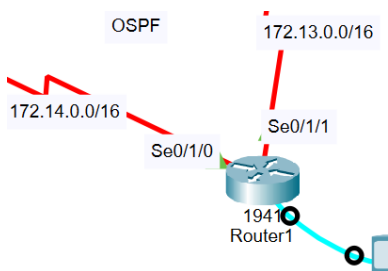
Router0(config-router)#network 172.13.0.0 0.0.255.255 area 0

Router0(config-router)#network 194.10.1.0 0.0.0.255 area 0

Router0(config-router)#exit

Router0(config)#exit

Router0#copy run start

Router1:

Router1# conf term

Router1(config)#router ospf 1

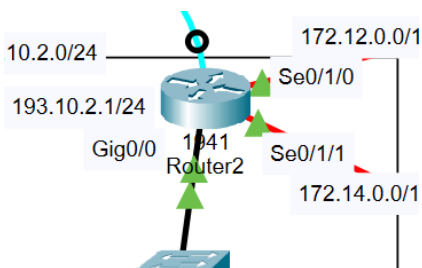
Router1(config-router)#network 172.14.0.0 0.0.255.255 area 0

Router1(config-router)#network 172.13.0.0 0.0.255.255 area 0

Router1(config-router)#exit

Router1(config)#exit

Router1#copy run start

Router2:

Router2# conf term

Router2(config)#router ospf 1

Router2(config-router)#network 172.12.0.0 0.0.255.255 area 0

Router2(config-router)#network 172.14.0.0 0.0.255.255 area 0

Router2(config-router)#network 193.10.2.0 0.0.0.255 area 0

Router2(config-router)#exit

Router2(config)#exit

Router2#copy run start

a. Documentar la comunicación entre la PC y los servidores.

PC con Serverweb

```

C:\>ping 193.10.2.2

Pinging 193.10.2.2 with 32 bytes of data:

Reply from 193.10.2.2: bytes=32 time=1ms TTL=126
Reply from 193.10.2.2: bytes=32 time=2ms TTL=126
Reply from 193.10.2.2: bytes=32 time=15ms TTL=126
Reply from 193.10.2.2: bytes=32 time=1ms TTL=126

Ping statistics for 193.10.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 15ms, Average = 4ms

C:\>
    
```

PC con ServerFTP

```

C:\>ping 193.10.2.3

Pinging 193.10.2.3 with 32 bytes of data:

Reply from 193.10.2.3: bytes=32 time=17ms TTL=126
Reply from 193.10.2.3: bytes=32 time=1ms TTL=126
Reply from 193.10.2.3: bytes=32 time=1ms TTL=126
Reply from 193.10.2.3: bytes=32 time=1ms TTL=126

Ping statistics for 193.10.2.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 17ms, Average = 5ms

C:\>
    
```

b. Documentar la tabla de enrutamiento de los Routers.

Router0

```

Router0>enable
Router0#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

172.12.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.12.0.0/16 is directly connected, Serial0/1/1
L       172.12.0.2/32 is directly connected, Serial0/1/1
L       172.13.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.13.0.0/16 is directly connected, Serial0/1/0
L       172.13.0.1/32 is directly connected, Serial0/1/0
O       172.14.0.0/16 [110/128] via 172.12.0.1, 00:06:40, Serial0/1/1
        [110/128] via 172.13.0.2, 00:06:40, Serial0/1/0
O       193.10.2.0/24 [110/65] via 172.12.0.1, 00:06:08, Serial0/1/1
194.10.1.0/24 is variably subnetted, 2 subnets, 2 masks
C       194.10.1.0/24 is directly connected, GigabitEthernet0/0
L       194.10.1.1/32 is directly connected, GigabitEthernet0/0

Router0#
    
```

Router1

```

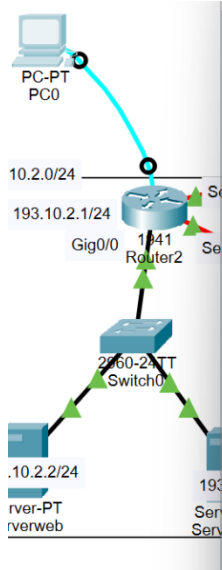
Router1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

O       172.12.0.0/16 [110/128] via 172.14.0.2, 00:08:19, Serial0/1/0
        [110/128] via 172.13.0.1, 00:08:19, Serial0/1/1
L       172.13.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.13.0.0/16 is directly connected, Serial0/1/1
L       172.13.0.2/32 is directly connected, Serial0/1/1
L       172.14.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.14.0.0/16 is directly connected, Serial0/1/0
L       172.14.0.1/32 is directly connected, Serial0/1/0
O       193.10.2.0/24 [110/65] via 172.14.0.2, 00:07:57, Serial0/1/0
O       194.10.1.0/24 [110/65] via 172.13.0.1, 00:10:54, Serial0/1/1

Router1#
    
```

Router2



```

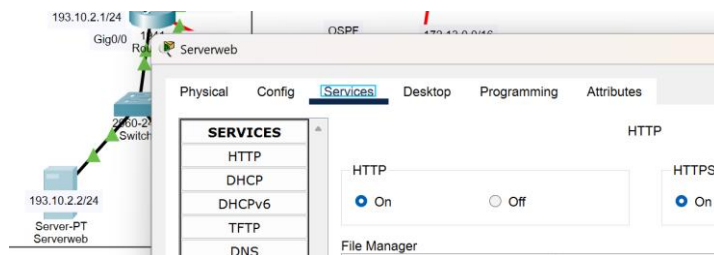
Building configuration...
[OK]
Router2#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

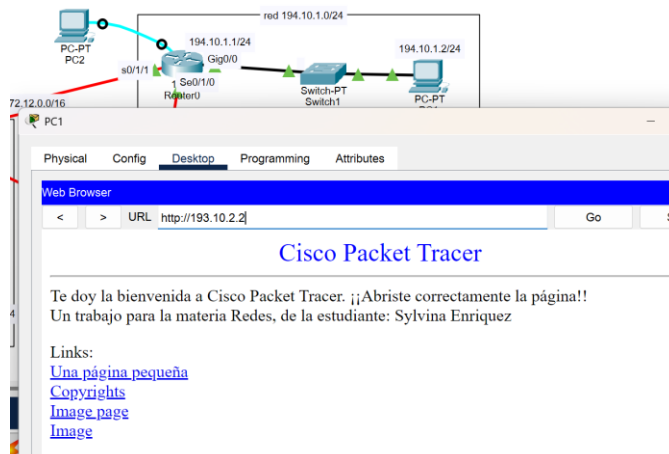
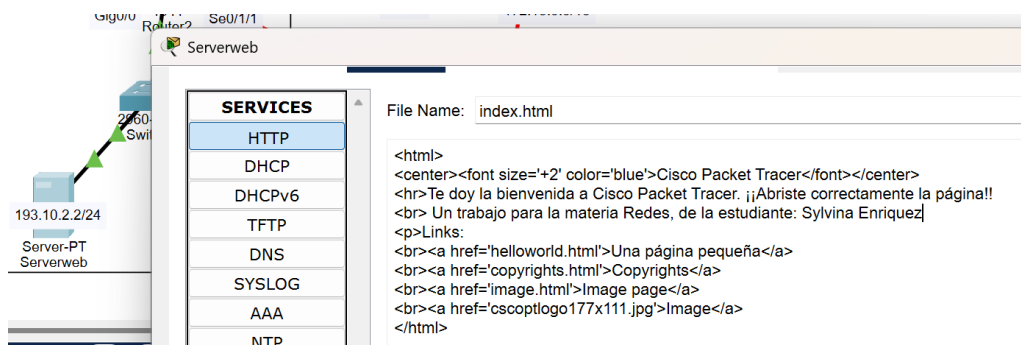
172.12.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.12.0.0/16 is directly connected, Serial0/1/0
L       172.12.0.1/32 is directly connected, Serial0/1/0
O       172.13.0.0/16 [110/128] via 172.12.0.2, 00:09:53, Serial0/1/0
        [110/128] via 172.14.0.1, 00:09:53, Serial0/1/1
172.14.0.0/16 is variably subnetted, 2 subnets, 2 masks
C       172.14.0.0/16 is directly connected, Serial0/1/1
L       172.14.0.2/32 is directly connected, Serial0/1/1
193.10.2.0/24 is variably subnetted, 2 subnets, 2 masks
C       193.10.2.0/24 is directly connected, GigabitEthernet0/0
L       193.10.2.1/32 is directly connected, GigabitEthernet0/0
O       194.10.1.0/24 [110/65] via 172.12.0.2, 00:09:53, Serial0/1/0
    
```

c. Documentar la comunicación entre la PC cliente y los servicios de FTP y WWW

Serverweb: Servicio HTTP (verificación de activación)



Modificación del index.html (para personalizar el trabajo)



ServerFTP: Servicio FTP (habilitación de servicio y agregado de una nueva cuenta)

The image displays two screenshots from the Cisco Packet Tracer environment. The top screenshot shows the configuration of the FTP service on a server (Server-PT ServerFTP). The 'Services' tab is active, and the 'FTP' service is enabled. The 'User Setup' section shows two users: 'cisco' with password 'cisco' and 'syl' with password 'redes2025', both with 'RWDNL' permissions. The bottom screenshot shows a terminal window on PC1 (194.10.1.2/24) where the user attempts to connect to the FTP server (193.10.2.3/24) using the 'syl' user and password. The terminal output shows a successful connection and login.

Network Diagram:

- Router0 (172.12.0.0/16) is connected to PC2 (194.10.1.1/24) via s0/1/1.
- Router0 is connected to Switch1 (194.10.1.1/24) via Gig0/0.
- Switch1 is connected to PC1 (194.10.1.2/24) via Gig0/0.
- Server-PT ServerFTP (193.10.2.3/24) is connected to the network.

Server Configuration (Server-PT ServerFTP):

```

SERVICES
  HTTP
  DHCP
  DHCPv6
  TFTP
  DNS
  SYSLOG
  AAA
  NTP
  EMAIL
  FTP
  IoT
  VM Management
  
```

FTP Service Configuration:

```

Service: FTP
Service: On
User Setup
Username: cisco Password: cisco
Write Read Delete Rename List
1 cisco cisco RWDNL Add
2 syl redes2025 RWDNL Save
  
```

Terminal Output (PC1):

```

Invalid or non supported command.
ftp>
ftp>
C:\>ftp 193.10.2.3
Trying to connect...193.10.2.3
Connected to 193.10.2.3
220- Welcome to PT Ftp server
Username:syl
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>
  
```

d. Adjuntar el archivo .pkt

Nombre del archivo: **TP6 – OSPF – Enriquez.pkt**

Conclusiones

Con el desarrollo de este trabajo práctico pude aprender la diferencia en la configuración entre los enrutamientos RIP (TP5) y OSPF. También aprendí a utilizar la máscara Wildcard.

Fue un desafío utilizar el servicio web y el de ftp pero muy satisfactorio haber llegado a concretar la comunicación.